

Application No. 09/883,705  
Amdt. dated July 11, 2003  
Reply to Office action of March 13, 2003

### REMARKS / ARGUMENTS

Prior to this amendment, claims 1-23, of which claims 1, 8, 11, 12, 13, 16, 20-22 are independent, were pending in the application. All claims have been rejected.

#### Rejections under 35 U.S.C. §102(b)

Claims 1, 6, 7 and 11-23 have been rejected under 35 U.S.C. 102(b) as being anticipated by each of SU 1,373,406 (Malinin) and WO 97/43,012 (Biller).

Applicants' claimed invention is a novel fire fighting composition and method of using the same. The invention provides an accurate means or method for measuring the mix ratio of a fire fighting foam concentrate or agent mixed with a diluent; for example, after the fire fighting foam composition has been foamed. The invention is especially useful when the diluent is sea water or water with a high electrolyte or high dissolved solids content.

The actual mix ratio tolerance at which effective fire fighting foam can be generated is relatively narrow. Both the National Fire Protection Association and Underwriters Laboratories require that the tolerance be held to minus zero and plus 30% of the designed proportioning ratio. For example, for a three percent foam concentrate that is designed to be proportioned at 3 parts concentrate to 97 parts water, the acceptable range becomes 3.0 to 3.9 percent; a one percent concentrate must be held to 1.0 to 1.3 percent.

Because the spectral property of the diluted composition of an embodiment of the claimed invention is substantially proportional to the concentration of fire fighting agent, at least over the concentration ranges of interest, the required tolerances can be easily maintained.

Sea water has both a high solids content and a high ionic strength (electrolyte content); it is therefore especially difficult to measure the true mix ratio accurately by the methods typically employed, *i.e.*, measurement of either refractive index or electrical

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conductivity. The change between a sea water solution that contains the foam concentrate and one that does not is not very large with respect to the original refractive index or electrical conductivity of the sea water by itself.

Thus, a major advantage of the claimed invention over these existing techniques is that, because it does not rely on refractive index or electrical conductivity, it works even with sea water or other high-solid content / high electrolytic content diluents.

Malinin teaches a fire fighting composition containing methyl orange as a color indicator. The composition is prepared by dissolving in part by diluting the composition with water until transparency is achieved. Malinin, Abstract (AB), second paragraph. This suggests a binary rather than proportional spectral property indicator: either the composition is transparent or it is not. Indeed, if transparency is the test, then a proportional indicator would have adverse effects, as it could be difficult to determine at what point the diluted concentrate is transparent.

Biller, p. 6, lines 19-20 indicates the use of food coloring; however there seems to be no indication as to what purpose the food coloring serves. One could posit that it serves to visually identify one type of composition from another using a different color dye, or that it perhaps serves the same purpose as Malinin's methyl orange (described above), or to visually indicate the extent of an application, *i.e.*, the area to which the composition has been applied, as taught by Stearn (see below), or some other purpose.

In any event, there is no teaching or suggestion by Biller to use a water-soluble dye to provide "a spectral property of a fire fighting mixture comprising the fire fighting foam concentrate and a diluent *being substantially proportional to the concentration of fighting agent* in the fire fighting foam mixture," as recited in amended claim 1 (emphasis added). Support for the amendment to claim 1 can be found, for example, at page 11, last line to page 12, line 3 of the Specification as filed. No new matter has been added.

Allowance of claim 1 as amended is therefore respectfully requested. Allowance of claims 2-7 and 18-19, which depend from base claim 1, should follow.

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Independent claims 11 and 12 have been amended to recite similar language and should be allowable for the same reasons.

Independent claims 13, 21 and 22 have been amended similarly, and should be allowable for the same reasons as claims 1, 8, 11 and 12. Allowance of claims 14 and 15, which depend from claim 13, and claim 23, which depends from claim 22, should follow.

Claim 16 has been amended to clarify that the comparison of light is done at the same wavelength. See Specification as filed, page 12, middle. No new matter has been introduced.

In any event, neither Malinin nor Biller, separately or in combination, teach or suggest "comparing, at a particular wavelength, the absorption of light of the sample to the absorption of light by a preestablished standard," as recited in amended claim 16. Therefore, withdrawal of the rejection of claim 16 is respectfully requested in favor of allowance. Allowance of dependent claim 17 should follow.

With respect to independent claim 20, neither Malinin nor Biller, separately or in combination, teach or suggest "comparing the spectral property of the sample to a pre-established standard," as recited in claim 20. Therefore, withdrawal of the rejection of claim 20 is respectfully requested in favor of allowance.

**Rejections under 35 U.S.C. §103(a)**

Claims 2-6 and 8-10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Malinin, and separately as being unpatentable over Biller in view of U.S. Patent No. 5,124,363 (Stearn).

As stated previously, allowance of dependent claims 2-6 should follow from base claim 1 as amended.

Stearn teaches that a dye can be used to visually indicate the "extent of application," Stearn, column 4, lines 49-51, *i.e.*, to indicate over what areas the disclosed composition has been applied. However, neither Stern, nor Malinin or Biller, alone or in combination, teach or suggest "a spectral property of a fire fighting foam mixture comprising the fire fighting foam concentrate and a diluent being substantially

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proportional to the concentration of the fire fighting agent in the fire fighting foam mixture," as recited in claim 8 as amended.

Independent claim 8 has been amended similarly to claim 1 as discussed above, and for the same reasons as claim 1 should be allowable. Allowance of dependent claims 9 and 10, which depend from claim 8, should follow.

Note that claims 5 and 9 have been amended to clarify that the fire fighting foam concentrate comprises a hydrocarbon *surfactant*-based foamable fire fighting agent. Support for this amendment is found in the Specification as filed; for example, in the two paragraphs beginning in the middle of page 5 and ending on page 7 of the Specification.

No new matter has been added by any of the above amendments.

#### New claims

New system claims 24-26 are similar to claims 1, 13 and 16, respectively, and should be allowable for the same reasons. New dependent claims 27 and 28 recite that the diluent may be either sea water or some other diluent having a high level of electrolyte relative to pure water and/or a high level of dissolved solid content relative to pure water. Support for claims 27 and 28 can be found, for example, at page 11, first full paragraph in the Specification as filed. No new matter has been added. Allowance of claims 27 and 28 should follow from claim 1.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned at (978) 731-7244.

Respectfully submitted,

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